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RECENT PHILOSOPHICAL PROCEDURE WITH REFERENCE TO SCIENCE

NOW that philosophy and science are showing so commendable an interest in one another, the problem of their true relation in the system of knowledge is a question of considerable significance. Indeed, the general character of present-day philosophy is best defined in terms of its attitude to science. The true order of knowledge is always for a time distorted by the brilliant success of any special type of investigation. But the conquests of science are now an old story, and we of the present generation should be able to judge of the issue with sobriety and logical highmindedness. The philosophy of the day is, in its most enlightened moments, conscious of a call to the task of interpreting the scientific activity and its fruits, for the sake of the proper coordination of all human knowledge.

At the dawn of modern philosophy a newly emancipated and too sanguine reason proposed to know the whole of nature at once in terms of the Galilean mechanical physics. That which is profoundly characteristic of Descartes, Spinoza and Leibniz appears in its bare arrogance in the rationalistic naturalism of Hobbes. Philosophy is to be science swelled to world-proportions, simple, compact, conclusive and all-comprehensive. Philosophy proposes to do the work of science, but in its own grand manner. The last twenty years of Hobbes's life, spent in repeated discomfiture at the hands of Seth Ward, Wallis, Boyle and other scientific experts of the new Royal Society, certified conclusively to the failure of an *a priori* mechanical philosophy of nature. The experimental specialist thereupon took possession of the field of natural law. The epistemological investigations of the eighteenth century having made plain the dogmatism of the former *a priori* philosophy of nature, the idealist, in pursuance of the rationalistic motive, reconstructed nature to meet the demands of knowledge. There issued together with little mutual understanding and less sympathy, on the one hand positivism,

or dogmatic experimentalism, and on the other absolutism, or dogmatic idealism. Hume, who consigned to the flames all thought save 'abstract reasoning concerning quantity or number,' and 'experimental reasoning concerning matter of fact and existence'; Comte, who assigned metaphysics to an immature stage in the development of human intelligence; and Tyndall who reduced the philosophical consciousness to an emotional experience of mystery, are typical of the one attitude. The other is well exhibited in Schelling's reference to 'the blind and thoughtless mode of investigating nature which has become generally established since the corruption of philosophy by Bacon, and of physics by Boyle.' Dogmatic experimentalism and dogmatic idealism signify more or less consistently the abstract isolation of the scientific and philosophical motives. And there is already a touch of quaintness in both of these attitudes. We of the present are in the habit of acknowledging the autonomy of science, and the unimpeachable validity of the results of experimental research in so far as they are sanctioned by the consensus of experts. But at the same time we recognize the definiteness of the task of science, and the validity of such reservations as may be made from a higher critical point of view. Science is to be transcended in so far as it is understood as a whole. Philosophy is critically empirical; empirical, because it regards all bona fide descriptions of experience as knowledge; critical, because attentive to the conditions of both general and special knowledge. In terms of a critical empiricism, so defined, it is the function of philosophy *to define and appraise the generating problem of science,* and so to determine the value assignable to natural laws in the whole system of knowledge.

Though this is the program of contemporary philosophy of science, it is not uniformly and consistently adopted. Were its truth more clearly recognized, we should not be under the necessity of challenging such relapses into an obsolescent manner of thought as appear in the writings of James Ward and Karl Pearson. A considerable portion of Ward's notable book is conceived in a manner worthy of Hobbes. Not satisfied with confuting the dogmatic positivist, and partly for the sake of confuting him, the author indulges in considerable riddling of the conceptions of science. The reader is encouraged to believe that with a little more dialectic, Professor Ward could overthrow the whole system of science. There is something almost of resentment in his tone, as though the foeman were not worthy of his steel. But, in truth, philosophy presents a very sorry figure when she attacks the conceptions of science in a hostile spirit. Not only is it presumptuous for the amateur to show the specialist the error of his ways, but also humorous for the study

whose barrenness is somewhat notorious, to challenge the legitimacy of her neighbor's numerous and very healthy progeny. It is thus that philosophy from time to time waxes so sublime as to be ridiculous. 'Naturalism and Agnosticism' is a book of marked interest and value, but suffers from a radical defect in so far as it criticizes science negatively and not positively. For the philosopher there is properly no question of the truth or untruth of any scientific law or postulate, but only of the kind of truth that eventual consistency with other truth affords them. On the other hand, if anything could justify a vindictive and rancorous temper in philosophy, it would be Pearson's exhibition of the attitude of science. The 'Grammar of Science' contains a refutation of metaphysics in the superficial metaphysical manner peculiar to positivism. It is obvious that no conclusions can be drawn respecting the ultimate boundaries of knowledge, or the definition of all knowable reality in any exclusive terms, whether sensational or otherwise, without assuming the point of view and undertaking the problems of that historical discipline known as metaphysics. Were the positivist to think patiently about such problems, he might after considerable advancement come to an understanding of those metaphysical conceptions which he now overthrows with so light a heart. It is little short of amazing that he can deny in doctrine the validity of a question to which his very denial is an answer. Ward and Pearson furnish convenient illustrations of reactionary tendencies in contemporary philosophy of science. It is a question of some logical nicety which position is most untenable, that of the philosopher who refutes science in detail, or that of the scientist who refutes philosophy in general.

But how shall the specific function of philosophy be defined? Several possibilities may readily be excluded. In the first place, philosophy will not be all the sciences regarded as one science. Science tends to unify without any higher criticism. The various sciences already regard the one nature as their common object, and the one system of interdependent laws as their common achievement. The philosopher who tries to be all science at once fails ignominiously because he tries to replace the work of a specialist with the work of a dilettante; and if philosophy be identical with that body of truth accumulated and organized by the cooperative activity of scientific men, then philosophy is a name and there is no occasion for the existence of the philosopher as such. Secondly, philosophy will not be the aggregation of the sciences; for such would be a merely clerical work, and the philosopher would much better be regarded as non-existent than as a bookkeeper. Nor, thirdly, is philosophy an auxiliary discipline, that may be called

upon in emergencies for the solution of some baffling problem of science. A problem defined by science must be solved in the scientific manner. Science will accept no aid from the gods when engaged in her own campaign, but will fight it out according to her own principles of warfare. And so long as science moves in her own plane, she can acknowledge no permanent barriers. There is then no need of any superscientific research that shall replace, or piece together, or extend the work of science.

But there still remains a chance of escaping the conviction of naturalism. He who attends only to a given type of object, *A*, may look everywhere and will see either nothing or objects of that type. His chance of seeing anything else depends upon the possibility of correcting his attention. Suppose him merely to become aware of his own attention in respect of its singleness and definiteness. His conclusion as to the exhaustiveness of his search must now depend upon the legitimacy of identifying his original attention to *A* with attention in general. And apparently that possibility is already precluded, for he has now become aware of an object other than *A*, viz., attention-to-*A*, the attention to which condemns his previous attention to exclusiveness and incompleteness. The logical self-consciousness has now been awakened, and there is no honorable way of putting it to sleep again. But precisely this is what has taken place in our account of the generating problem of science. To define science is to define a realm that is inclusive of science, the realm of active intellectual endeavor. One can not reflect upon science and assign it an end and a method proper to that end, without bringing into the field of knowledge a broader field of experience than the field proper to science, broader, at any rate, by the presence in it of the scientific activity itself. Here, then, is the field proper to philosophy. The scientist *qua* scientist is intent upon his own determinate enterprise. The philosopher comes into being as one who is interested in observing what it is that the scientist is so intently doing. In taking this interest he has accepted as a field for investigation that which he would designate as the totality of interests or the inclusive experience. He can carry out his intention of defining the scientific attitude only by standing outside it, and determining by means of nothing less than an exhaustive searching out of all attitudes. Philosophy is, to be sure, itself a definite activity and an attitude, but an attitude required by definition to be conscious of itself, and, if you please, conscious of its own consciousness until its attitude shall have embraced in its object the very principle of attitudes. Philosophy defines itself and all other human tasks and interests. None have furnished clearer justifications of philosophy than those men of scientific predilections who

have claimed the title of agnostics. A good instance is furnished by Mach, who from some perversity chose to call his reflections 'anti-metaphysical.' 'Physical science,' he says, 'does not pretend to be a complete view of the world; it simply claims that it is working toward such a complete view in the future. The highest philosophy of the scientific investigator is precisely this toleration of an incomplete conception of the world, and the preference for it rather than an apparently perfect but inadequate conception.'[1] It is apparent that if one were to challenge such a statement the issue raised would at once be philosophical and not scientific. The problem here stated and answered requires for its solution the widest inclusiveness of view, and a peculiar interest in critical reflection and logical co-ordination.

But there is no little danger in such a logical approach to metaphysics. There are two types of error to which it has commonly led. In the first of these natural science is depreciated because its categories are not sufficiently ultimate, and reality is defined dialectically in terms of a supreme logical principle which ignores or annuls 'positive' knowledge. In the second case the category is condemned as such, because it is held to involve a *transformation* of reality. Both are transcendentalist philosophies, the former being the case of absolutism, the latter that of irrationalism. Professor Münsterberg's philosophy is a notable contemporary instance of the second type; and I offer a brief criticism of it for the sake of defining more clearly what seems to me to be a characteristic misconception, sufficient to vitiate an otherwise correct philosophical attitude to science.

In the 'Grundzüge der Psychologie' we are led by virtue of conscious attention to the deliberate transformations of science, to conceive of 'die reine Erfahrung,' the original realm of the appreciative practical attitudes of the will. The physical and psychical realm of natural science is held to be unreal because logical analysis discovers the purposive activity of the science to be more fundamental than its fruit. Moreover, in experience objects have their unity and individuality by virtue of their practical significance. In view of these facts, there is reason to conclude that will directed to ends is the determinative principle in reality, and so the most ultimate metaphysical category. But why on that account try to make reality out of it? Will as a principle, attitude or appreciation in general, may be legitimately arrived at in the progressive discovery of priority, but no one can remain in the contemplation of them and ever hope to say anything about reality. The most fundamental category, if taken alone, is just as abstract as any other category.

[1] 'Principles of Mechanics,' p. 464.

The conceptions that have been stripped away in the logical search for the central stem must be restored in the metaphysical construction. Hence it is the task of metaphysics in its search for reality, to show how space, and time, and physical and psychical objects, may belong to a reality that is fundamentally will. Professor Münsterberg has merely reasserted metaphysically the negations of logic. Reality is not spatial, temporal, physical or psychical, because these are transformations of reality. Reality is *that which* is so transformed. The scientific activity and its fruits are governed by logical necessity, but there is no evidence that reality is their native place. How is this any better than Schopenhauer's statement that the will gets itself objectified because it can not help it? To be sure, Professor Münsterberg tells us that the scientific transformation of reality is required by duty. But since duty can not here signify the compulsion of the individual will by the over-individual will, it can only mean the law of will in general. Then it is the proper problem of metaphysics to show how a world that is fundamentally will must be in some respects spatial, temporal, physical and psychical. Either the very program is a contradiction in terms, or it must mean that there can be no bare will, but only a world in which will is the determining conception. No noumenal world can ever generate a phenomenal world. Such a division can mean nothing unless that the phenomenal world is *true of* the noumenal world, but not exhaustively or fundamentally true of it. Science must be true of reality. It would possess a contradiction in its very heart if it were not so. It is not metaphysics to deny the reality of space and time, but to define their reality. No one has given a better definition of real time than has Professor Münsterberg himself in his account of it in the practical terms of irrevocableness, presence and expectancy. It is for metaphysics to reconcile this experience of time and the temporal order described by science. The whole difficulty seems to arise from the principle of transformation. Neither nature nor any other object of knowledge can be merely what is *made out* of reality. But nature may be abstract or partial truth. Science may well be an incomplete account of reality determined by considerations of a practical character. Reality will then stand in contrast to nature as the concrete to the abstract. Metaphysics must construct the reality that shall contain nature. Professor Münsterberg's error lies in conceiving reality to be experience prior to its transformation by science, rather than experience concrete and with compensation for the abstractness of science.

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NOTES UPON LOGICAL TOPICS

II. The Meanings of the Term Idea

IN this note I venture to set forth some results concerning the development of the meanings of the term 'idea' gained from reading Murray's Oxford Dictionary. I believe it will be found that the actual succession of meanings of this term put before us a life history of a thought which is quite as significant in its way as is the series of morphological changes gone through in the life history of any animal.

(1) The original and primary signification of the term is definitely objective. The word is a straight transliteration of the Platonic *ἰδέα*. No psychological, not even a conceptual, sense attaches to the term. The idea is a real essence or substance of a spiritual as distinct from a material sort. But the Platonic idea is also, of course, an archetype, and as such serves the purpose of an exemplar and model. This sense introduces the subjective rift into the lute; and the further history of the term represents the evolution of this shade of meaning until as thoroughly psychical it dominates; and displaces, even not only the original ontological sense of spiritual essence, but apparently all objective reference.

A perfect archetype, being an ideal, serves to introduce (2) idea as the conception of an objective end to be realized—'the plan or design according to which something is created or constructed.' Here objective meaning is still dominant. The plan or design is not mental; it is a real plan of real construction which is meant, something, say, like the architect's design for a house. But there is now an easy road to a more subjective sense, since we have (3) the idea as a plan in the sense of *intention*, an attitude of consciousness to be fulfilled in the thing to be done or executed. The plan of the house need not be the objective scheme in accordance with the specifications of which the builder is working; it may be the notion of a house as a desirable thing suggesting itself in an inchoate condition and not yet having taken shape in any definite mode of construction. The volitional reference, however, is so marked as clearly to preserve objective import and reference; the objective is the goal, the object.

(4) Idea in Greek as well as in English means shape, image, figure. This meaning also is quite objective at the outset. A picture, for example, is an idea. So we have a quotation, as late as Skakespeare, to this effect—

> "I do infer your lineaments, being the right idea of your father,
> Both in your form and nobleness of mind."

Now let this sense of an objective picture or representation blend with the sense of idea as desirable end entertained as a purpose or intention, and we get a distinctly new turn of thought. Such fusion, moreover, is practically bound to occur, since in many cases the idea as intention (for instance, the entertaining the project of building a house) is sure to take the form of an image of the house which is wanted. Through this fusion there arises (5) the sense of idea which is probably the popularly current one at present: idea as a mental picture or representative of anything whatsoever, past, present or future. Here the meaning is, so to speak, just on the dividing line between the subjective and the objective. It is subjective in so far as the picture or representation is taken to be mental, part of the possessions of a personal life. But it is objective in content and reference. It is a mental scheme or portraiture *of* something or other. It is just *something* in the mind instead of in space. For example, the idea of a cow is, in the intellectual realm, just what the thing cow is in the physical—so, at least, it seems to naïve consciousness. The idea is subjective in existence, but not in import or worth. For certain purposes the idea is just as good as the real thing, and indeed under certain circumstances better. A picture is often a convenience where the thing of which it is a picture would be a nuisance. If the picture serves the purposes for which a picture is usually intended, we do not regard it as any reflection upon its reality or objectivity to say that it is just a picture. What else should it be? The greenback is not a beefsteak; it can not, like beefsteak, be eaten and so nourish the body; but it may be much more convenient and useful in the pocket than would be the beefsteak. Now it seems to me that to the naïve, non-philosophical consciousness, ideas are in just about such a situation as this. They are felt to be representatives of certain realities; thus they are not the realities of which they are representative. But they have a reality of their own, which, moreover, like that of the portrait, is just as good as, and for certain purposes better than, that of their originals or objectives.

But a portrait may be a poor one. It may misrepresent the original. Ideas frequently turn out to be misreports, misconceptions; they are mis-takings of the object; hence we get (6) the sense of *mere* idea; fancy as opposed to fact, chimera as opposed to solid thing. Here the subjective sense is peculiarly to the fore, but, after all, is prominent only because of an implied objective function and worth which the idea has failed to subserve. This meaning could not originate without at least a prior sense of objective worth which has failed in a given case to make good. Anyway, the idea now becomes something peculiarly and distinctively

mental. This meaning of idea as a product of pure mental activity, cut loose from any object, the idea as the affair of arbitrary imagination, seems historically to have been the transition to our next sense, (7) where the idea signifies any product of mental activity when so regarded, that is, *qua* mental. Or in dictionary phrase, the idea is 'an item of knowledge or belief as existing in the mind; a thought, conception, notion, way of thinking.' To conceive an idea as an item of knowledge existing in the mind or intellect is a remarkable achievement, the importance of which is disguised from us only by its familiarity and constant employ. As an item of knowledge, it must be objective in import. But as existing in the mind it is subjective. It is just a thought, a 'notion,' a fancy. It is (*a*) a way of thinking *objects,* but (*b*) it is only a *way of thinking.* Ideas in this sense become a tremendous resource for science. By this device we succeed in storing up, so to say, all the things and objects which we have known; and yet store them in such a way that we can readily discard them in case we find reason to suspect their validity, and can modify and transform them so far as further experience indicates the desirability of reconstruction. Ideas in this sense are past knowledge organized with special reference to its own correction, further verification, the taking in of new meanings, and for use as tools of discovery.

(8) But the matter of knowledge, the truth or fact, the plan, the original spiritual substance, is finally unambiguously 'in the mind.' It has to accept the coloring given to it by its new habitat and companions—which corrupt its naturally good (objective) manners. Now we have the full-fledged Lockeian meaning. It is 'that term which serves best to stand for whatsoever is the object of the understanding when a man thinks.' It is used 'to express whatever is meant by phantasm, notion, species, or whatever it is that the mind can be employed about in thinking.' Thus Locke. The life history of the term has consummated itself. The idea is now a *subjective object* as such. That is to say, it is an object which is simply the construct and content of mental activity as such. The world of objects has not only passed over into mind so as to have certain representatives of itself there which can be manipulated and managed for the mind's own purposes; but it has got so completely domesticated in mind that its representatives there have lost all consciousness of their family relationships in the world of facts and truths. The idea sets up in business as itself an object, but an object of a peculiar and unique sort, the object of consciousness as consciousness, and only of 'consciousness'—mere mental entity. It is now a short cut to Hume's 'every distinct idea is a separate existence,' and to the denial

of all possibility of converse with things and of causal connections—since our only tools are just states of consciousness.

In leaving this summary, I will content myself with one question. Are there really and truly any such independent psychical entities as the Lockeian ideas, or have we in ideas as just psychical simply a more adequate methodological device for facilitating and controlling knowledge—that is to say, acquaintance and transactions with objects? The account of ideas in James's 'Psychology' would, if the latter view be correct, give sense (9) of idea—the idea as a mental state for the sake of referring easily and fluidly to *any* object in *any* phase, and thus freeing and facilitating our intercourse with things. The idea as purely psychical is the object in solution, moving towards re-precipitation in some object which is more anticipated, which thus satisfies more, and hence has increase of meaning. Although wholly subjective, subjective is a phrase which refers to objectivity undergoing liberation from pre-committed, and hence limited, modes of significance, and by solution in the medium of personality getting varied worths.

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DISCUSSION

A REPLY TO DOCTOR SPAULDING

I HASTEN to reply to Dr. Spaulding's review of my 'Introduction to Systematic Philosophy,' because, if I understand him aright, fundamentally we agree. He takes issue with my theory of knowledge, I believe, simply because of my terminology. With him I certainly do maintain that knowledge is a process transcending itself. To explain, I use the term 'experience' in my preface (idealism 'limits all problems to the world of experience') simply as a shibboleth. I meant it in the sense in which Professor Ormond, if I mistake not, uses it in his 'Foundations of Knowledge.' This and other terms of idealism are unfortunate, but excusable. So, too, when I use the expression 'present consciousness' (with Hobhouse) for the 'given,' I think the term unfortunate, but pedagogically excusable. My task was to present the doctrine in such a way that the beginner might be gradually led from the familiar to the unfamiliar, from the more concrete to the more abstract. I feared to confuse him quite if I used high abstractions. I should much have preferred to drop all such terminology and, I think, thereby should have escaped just such misunderstanding on the part of the critical reader as that of Dr. Spaulding.[1]

[1] My note on page 373 was intended to explain this.

The doctrine is better expressed as follows: All knowledge is an interpretation of the factual. The past, the future and the absent present, the minds of other men, etc., constitute an interpretation of the factual, the logically given. That is, the world extending indefinitely in space and time, the world of consciousness and of non-consciousness, of me and not-me, and all the rest has meaning ultimately only in terms of the factual. To me as well as to Dr. Spaulding all this seems a truism. None the less, it is well worth discussing and teaching, first, because it is a doctrine not lived up to, and secondly, because it is one of the outcomes of a great movement in the history of philosophy, *i. e.*, nominalism and English empiricism. The practical value of this doctrine is that it denounces all hypostasizing of abstractions, teaching, as it does, that the conceptual or any interpretation has meaning only in so far as it describes an aspect of the concrete or factual.[2]

Again about the *a priori*, I think that I agree with Dr. Spaulding.[3] As knowledge grows it sees more clearly its presuppositions. It revises them over and over. Perhaps our present *a priori* tenets will have to undergo revision. Perhaps we have mistaken some for *a priori* that are not. Thus absolutism means not a claim to infallibility, but the belief in the complete logical priority of certain principles, and asserts that as long as those principles have this logical priority their authority is absolute. But to claim that they always will have this priority would be to lay claim to infallibility, first, in our analysis of knowledge, second, by maintaining that we know infallibly that knowledge will not outgrow its present categories. In short, absolutism and empirical-mindedness are not opposed, as some seem to think.

Regarding pragmatism, I am heart and soul in favor of it; but I am afraid that, like all other doctrines, it will become a narrow 'ism.' Knowledge must strive to be logical. We shall always need our Bradleys, and I can forgive the Hegelians if they think that the pragmatists do not know even what philosophy is. The logical aspect is philosophically as important as the pragmatic, and my book tries to be true to both aspects.

I confess frankly several of my chapters are too prolix. Again, in some chapters I have, I fear, made it hard for the critical reader by not showing where the philosophic problem ends and the problem of empirical science begins, *e. g.*, 'The Conservation of Mass and Motion,' and 'The Atomic Theory.' I wished to keep entirely clear of the dispute between the *Energetiker* and others as far as their

[2] It seems to me that all this is one of the chief points that Hobhouse makes in his 'Theory of Knowledge.'

[3] I agree with Hobhouse, pp. 590–594.

problem is purely empirical, so, too, with other problems. In short, my search was for the *a priori* pure and simple, and therefore my defense of the atomic-mechanical theory meant to keep clear of all special problems and present speculations in physics and chemistry. My problem was, in what terms must human reason try to formulate its interpretation of nature in order to accept that interpretation as ultimate.

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ACCOMMODATION AND CONVERGENCE IN THE PERCEPTION OF DEPTH

IN the *Psychological Bulletin* of February 15 there appeared a review of my recent paper, 'The Influence of Accommodation and Convergence upon the Perception of Depth' (*American Journal of Psychology*, XIV., 1903, pp. 150 ff.). The reviewer has, unfortunately, failed to catch my meaning in several instances, a fact which might be attributed to my own lack of clearness of statement. But since Hillebrand, Arrer and Dixon meet a similar fate, and are equally misrepresented in the review, it seems clear that the fault lies rather with the reviewer than with the writer of the paper.

The review states (p. 86) that my paper 'gives a confirmation of substantially all the experimental results as such found in the three earlier investigations with substantially the same apparatus—by Hillebrand, Arrer and Dixon.' Now it is patent to every psychologist who has read the literature of the problem that a chief characteristic of the results of these investigators is their contradictory and irreconcilable character. I did not, for an obvious reason, confirm *both* of the contradictory contentions which are found in their publications. The miraculous power of reconciling irreconcilables, which the reviewer ascribes to my paper, I must in all modesty disclaim. That I did *not* confirm the results of Hillebrand is evident from the briefest survey of my tables and introspections.

It is no less clear from the literature that the various forms of apparatus which have been employed in the investigation of the problem are essentially different in principle. Even if the diagrams accompanying the papers in question did not furnish a clear envisagement of these differences, the extended discussions regarding the diversity of principle involved could scarcely have left the reviewer in doubt. Yet these diagrams, these discussions and my summary of the latter appear to have escaped his notice. It is manifestly impossible that my apparatus could have been 'substantially the same' as another which differed radically from it in principle.

That part of my paper which is devoted to the description of my

apparatus and method is 'open to the charge of needless repetition.' That it could be condensed, I freely grant; but in my desire to make myself understood by even the most cursory reader, I deemed it advisable not only to go into details, but also to refer the reader to Hillebrand's paper. Yet in spite of my 'needless repetition' the reviewer utterly fails to understand the construction of the apparatus. In discussing it he says: 'The eye localizes a black patch at a greater distance than a white' (p. 88). It is tolerably clear from Hillebrand's description, if not from my own, that what the eye fixates is neither a black patch nor is it at a greater distance than the white surface.

Notwithstanding the fact that I have combated the Hering-Hillebrand contention throughout, and have attempted to show cause for the rejection of the nativistic explanation *in toto*, the review imagines that I accept 'nativism as respects relative binocular localizations, while rejecting it for monocular vision' (p. 87). I fail to find any passage in the paper which can be interpreted as an 'acceptance of nativism,' even in such a half-hearted and wholly inconsistent manner as is ascribed to me.

There is no indication that the reviewer is joking when he jauntily outlines a program for future investigators (p. 87), evidently in blissful ignorance of the life and labors of Donders, Goldscheider, Wundt, Dixon and various other experimentalists. That he is hopelessly at sea, even as regards the rudiments of psychological space, is evident from his meaningless reference to 'irradiations' and 'range of accommodation' (p. 86).

It is bootless to particularize farther; and it were charity to refrain from a discussion of his criticisms. The review is not wholly futile, however, for it points out a misprint on page 177 of my paper. The passage should read '10 cm. in 7 sec.' Let me take this opportunity to say that 'Hering's bold statement' (p. 199, l. 2) should be corrected to read 'Hering's bald statement.'

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REVIEWS AND ABSTRACTS OF LITERATURE

The Psychology of Child Development, with Introduction by John Dewey. IRVING KING. Chicago, The University of Chicago Press, 1903. Pp. xx + 265. Bibliography and Index.

The purpose of this book is, in the words of its author, 'to interpret, as far as possible, the phenomena of mental development from the point of view of functional psychology.' He attempts to carry out in the field of genetic psychology the ideas of which Professor Dewey is so notable a representative, and it is of interest to know that he has the endorsement

of the latter. According to both Professor Dewey and Mr. King the results of previous studies of childhood have usually been the collection of much genetic *material,* but the treatment of this has been such that 'the final effect and value, both psychological and pedagogical, have not been genetic.'

The book may, therefore, be regarded as the exposition of a theory of interpretation and the application of this to some of the material collected in the field of genetic psychology. The author does not attempt to enlarge our store of facts. He considers in turn the nature of early consciousness and the conditions of its development, early emotion, inhibition, imitation; the moral ideas of childhood, its interests, their development; and the characteristics of adolescence. Everywhere the theory appears that mental development is the result of an attempt to render our activity more effective through a clearer definition of its object. The functioning of consciousness is held to produce and guide its growth.

With this general notion I think we can hardly fail to agree. If we are properly to interpret the contents of the child's mind, we must understand what it tries to do, and we can derive our view of its notions and purposes only from a knowledge of the situation in which it has lived. In so far as such situations are common to all children our notions of childhood based on their study will be generally valid. I find it hard, however, to believe that the better psychologists in this field have ignored these considerations. But that Mr. King has offered some interesting suggestions as a result of their application can not be denied. As examples we may note the following contentions. Such reactions as in earliest infancy are often taken as signs of emotion are not such, the author thinks, because the child is not conscious of any objects at which the feelings are directed. Anger, for instance, directed at nobody or nothing is not the true emotion of anger. That the uncomfortable feeling caused by disagreeable stimuli plus the feeling of the reactionary bodily disturbances are all that the child experiences when it first acts as though it were angry, we may well believe. Some might be willing to call such an experience anger. Again, Mr. King says that while we as adults naturally suppose that the imitating child is from the first trying to copy, it is, in fact, only endeavoring to get a new experience. Here too I feel that the psychologists have not been so badly in error as Mr. King would have us believe.

The author summarizes the results of the literature on the interests of children. He endeavors to explain their development on the basis of his general theory. Here I feel that he frequently forgets his rule of interpreting the meaning of the child's acts from a knowledge of the *specific* condition under which they occur. For example, certain data in regard to children's ideals show that 35 per cent. of boys nine years of age chose their fathers' occupations as the ideal ones. Also at the age of thirteen a similar tendency appeared. Mr. King declares that in both cases the reason is that the children have reached an age of uncertainty in regard to their ability to cope with newly discovered conditions of

life, and consequently they fall back on an ideal that is backed by authority. He does not base his assured statement on any convincing array of facts in regard to the situations of the children who make this choice.

On the whole, therefore, I should regard the general theory of the book as sound, and its specific application to various phases of the mental growth of children as suggestive. I should hesitate to use Mr. King's volume to familiarize students with the materials yielded by work in genetic psychology, but I should undoubtedly wish to refer those who have been looking over these materials to his interpretation of them.

E. N. HENDERSON.

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Psychology and Common Life. FRANK SARGENT HOFFMAN, Ph.D., Professor of Psychology, Union College. New York, G. P. Putnam's Sons, 1903. Pp. 286.

The object of this book, as set forth by the writer, is 'to select the most important facts from the great mass of material now accumulated by students of psychical research, describe them in language easily apprehended by the general reader and point out their bearing upon the interests of every-day life.

It is quite possible to say that this object has in a general way been accomplished, and at the same time the result has but little interest for any but the general reader. While worked up with the requisite clearness and discrimination, it has none of the originality and suggestiveness which make the best popular works illuminating to the subject.

The selection of material is, however, good, except that, unless the author has taken the term psychical research in its limited meaning, the space given to the topics usually connected with this term is proportionately too large to make the book a fair presentation of psychology as a whole. Of the ten chapters only three are devoted to the fundamental topics of the science, while hallucinations, hypnotism, mental healing, mind-reading telepathy and multiple personality claim the other seven. The treatment of these topics is, however, of a nature to give the reader sane and scientific views of these phenomena, and this is accomplished without any undue digression into the technique of scientific evidence and method. In his entire treatment the author shows evidence of a thorough acquaintance with the literature of the subjects, and displays a noticeable felicity in selection and interpretation of illustrations.

Criticism from any other than the popular standpoint is perhaps uncalled for. Both selection of material and method of presentation should be judged from this point of view. At the same time one can not be wholly satisfied with any presentation of the science which, in order to be 'apprehended by the general reader,' tacitly admits the rightness of popular and uncritical notions of mental energy, attention, etc., and which, in its selection of material, makes no specific reference to the side of feeling and will, thereby tacitly confirming the popular mind in the identification of mind with its intellectual aspects. With these

limitations the book is a creditable piece of work and will undoubtedly find acceptance with those for whom it is intended.

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Die reproduzierte Vorstellung beim Wiedererkennen und beim Vergleichen. GAMBLE and CALKINS. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane,* Vol. 32, pp. 177–199, and Vol. 33, pp. 161–170.

The authors repeated the experiments of Lehmann[1] with olfactory stimuli with the purpose of getting a conclusive answer to the question: 'Are recognition and comparison entirely constituted by associated images?' The answer was in the negative. The experiments consisted in getting the observers: (1) To report in the actual order of occurrence all the images evoked by any given olfactory stimulus; (2) to note any break in the train of images; (3) to say whether the odor was familiar or unfamiliar; and (4) to write down its name as soon as it occurred. The observers were three trained psychologists and twenty-one students without psychological training. Some of the observers began to take notes as soon as they perceived the stimulus, while others did not begin to write until their train of ideas had come to an end. The statistical results were as follows: In 7.2 per cent. of the experiments the observers reported 'unfamiliar' and had no images whatever; 3.6 per cent. of the odors were called 'unfamiliar' and were followed by a train of images that were all incorrect; while 6.2 per cent. were followed by a train of images at least one of which was correct. The word 'correct' referred to associations, olfactory or other, explicable by real similarity between smells or by earlier experience of the stimulus. There was a percentage of 4.3 of cases where 'familiar' was reported without any associated images whatever; 3.5 per cent. of the familiar stimuli were followed by incorrect images and 10 per cent. by correct images. The cases of familiar unnamed odors were divided according as the associations came distinctly later than the recognition, or were practically instantaneous. Of the total number of odors 3.5 per cent. were familiar and followed by correct associations; 10 per cent. were familiar and followed by incorrect associations; 7.1 per cent. of the total number of stimuli were unfamiliar and accompanied by correct associations, whereas 23.4 per cent. were unfamiliar and accompanied by incorrect associations.

The present experimenters urge three objections to the Lehmann theory (that recognition is constituted by supplementary images): (1) They find, it is true, very few cases of recognition without supplementary images, and are ready to admit that there may have been forgotten images in these cases; yet they insist that although the existence of associations can not be disproved in a given case of recognition, associations so vague as to escape notice can not constitute recognition. (2) They argue that the occurrence of supplementary images with unrecognized odors tends to discredit the theory that recognition consists in the presence of the supplementary images. But there were 35.5 per cent. of correct images

[1] Phil. Stud., 7, 169 ff.

and 21.2 per cent. of incorrect images as over against 42.3 per cent. without images in the whole number of unrecognized stimuli. (3) They point out that associations more often follow recognition than they precede or accompany it, which would seem impossible on the theory that recognition is made up of the associated images. In this last connection it was incidentally found that in the case of 15 out of 90 familiar, and in 2 out of 24 unfamiliar, stimuli the recognition was retarded. This is taken by the experimenters as an indirect proof against the statement of Lehmann that if recognition is immediate in the sense of existing without images, it must also be immediate in the sense of occurring without appreciable lapse of time after the perception of the stimulus. The cases of retarded recognition raise the question as to the content of consciousness during the time between the stimulus and the occurrence of the recognition. The present experimenters think that it is necessary to posit here a definite feeling of unfamiliarity.

Lehmann's supposition that the word image is of special importance for recognition is discredited by Misses Gamble and Calkins, who show that the name is more frequently the *terminus a quo* of a train of images than the *terminus ad quem,* although it is more frequently the *terminus ad quem* than the intermediate member of a series of associations, and that it is more frequently the only association than an intermediate member. Incidentally (p. 186) it is shown that the trained observers reported more reproductions than the untrained, and (p. 196) that the former, being more accustomed to think in abstract terms, have in general a greater tendency than the latter to name the stimulus.

Part II. of this research, on the influence of word images in the discrimination of the qualities of successive stimuli, was carried on with vials containing colored liquids and with colored papers, as visual stimuli, and with a series of olfactory stimuli. It was found that 'a scheme of names, logical or otherwise, was of some assistance to three fifths of our subjects in qualitative discrimination, but that this advantage was trifling; and yet that when one turns from the number to the direction of the errors, one finds that the name image seems to aid only in discrimination proper, and actually to increase the number of failures to identify.' These experiments corroborate the statement of Bentley[2] that gray and colored objects seen in daylight and reproduced tend to become lighter in the memory image; inasmuch as, in the visual series described in this article, the second stimulus was more frequently called darker than lighter. In this series of experiments the olfactory stimuli were richer in associated images than the visual, but these were largely olfactory images. It is noted, however, by the authors that 'by smell associations, smell names given either as wrong names for the stimuli or as ordinary associations are meant' (p. 188). The general conclusions of Part II. were: (1) The associated word images are essential neither for the consciousness of likeness, nor for that of unlikeness, but (2) that in experiments of this kind, the word images have a tendency to evoke a consciousness of unlikeness and to inhibit a consciousness of likeness.

[2] *Am. Journ. Psy.*, October, 1899.

It seems to me that in these experiments the impossibility of really knowing whether or not the subject has ever experienced any given stimulus before, makes the results of very little value. The answers, or associations, of the observers are reckoned as right or wrong according as the experimenter thinks that the observer could or could not have smelled the same smell before. If the smell was perceived by a person when five years old and then after the lapse of twenty years, it would be highly improbable that the olfactory disposition should retain its individuality for so long a time.

The question as to the image theory of recognition is whether images are necessary to the recognition or not. This could easily be answered in the negative by reflecting: (1) That there are many persons who never have any images at all, and who certainly could not be accused of never recognizing anything; (2) that there are many occasions, even in the life of introspectively inclined persons, when they are not in the least conscious of images of any kind, and yet go on cognizing and recognizing all the time; and (3) that in the above question a distinction should be made between supraliminal and subliminal images. Evidently most psychologists have meant subliminal images, *i. e.*, dispositions. In that case the experiments of Lehmann, and of Gamble and Calkins, in so far as they record *supra*liminal images, are all well enough, but when they state that recognition is possible without them, they are not touching the real point at all. What is really left to prove is that the *sub*liminal images constitute the recognition, a point which is not considered by them. They have to prove that *sub*liminal images do not constitute the recognition, and that is not susceptible to proof by the methods of Lehmann and Gamble and Calkins, because in recording the *supra*liminal images they are omitting the *sub*liminal images all the time. Of course it is impossible to get any experience of *sub*liminal images, because the moment we are conscious of them they cease to be *sub*liminal and we know not what they do when they are, so to speak, out of sight. I see nothing in the two articles of Lehmann and of Gamble and Calkins that throws any light on the question as to whether recognition is constituted by *sub*liminal images.

The positive arguments, from the data of consciousness, all seem to me in favor of a *Bekanntheitsqualität,* which quality is not a quality of the thing recognized, but is a quality of the content of consciousness, and seems to me to belong, more than any other class, to the class of conscious qualities which we call organic sensations. WILFRID LAY.

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Proverbial Morality. ROBERT A. DUFF. *International Journal of Ethics,* January, 1904, pp. 172–179.

This is a plea for the value and importance of so-called 'proverbial morality.' By it we are to understand 'maxims of conduct which have reached the dignity of expression in a popular phrase.' They are the common saws of ordinary parlance. As such they have claims to be regarded as expressive of the earliest reflective morality; they represent the

highest degree attained by many persons; and they have a vitality and permanence which merit something other than the neglect which they have received.

Proverbs have certain definite characteristics. They are negative in their caution and restraint by representing vividly the results of injudicious or evil conduct. Hence they often smack of pessimism and appear cynical. Their negative character, too, affords them the advantage of being on the winning side. Yet they are not general truths. They only appear so. Their form and matter are inconsistent. They really give expression to some one aspect of life. They have not breadth of outlook, but rather precision of illustration. How, then, have these narrow and partial proverbs retained their hold? It is due, says the author, to their 'many-sidedness and catholicity,' on the one hand, and to their 'unsystematic character,' on the other. They represent not tendencies, but diversities of experience. The representation, moreover, is often self-contradictory. This might appear fatal; but self-consistency is not an invariable requisite of efficiency nor is it a representation of the complexity of moral problems. Hence the real service of proverbs. They are conservative; they help to maintain balance and sanity. They have also been positive in preventing stagnation and adherence to half-truths. Even though the morality be not always of the highest, it is comprehensive and corrective. There is, therefore, available material here to assist in the formulation of a theory designed to meet the needs of humanity.

The field to which the author has here drawn attention is a neglected one. Aside from the proverbs extracted from the Bible and folk-lore, and the *sententiæ* of the classical writers, hundreds of these proverbs came in through the emblem and epigram writers of the sixteenth and seventeenth centuries, and from the poets as well. A considerable portion of instruction in morals at this time was imparted by means of maxims presenting the virtues of civil, political and religious life. The effect of this instruction on morality has not as yet been estimated. Such an historical investigation would certainly contribute to the history, possibly to the theory, of ethics.

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La morale de Renouvier. A. DARLU. *Revue de Metaphysique et de Morale,* January, 1904, pp. 1–18.

This article is one of a group by different writers shortly to be published in separate book form under the general title 'Les idées morales contemporaines.' It is itself a review of Renouvier's two-volume work, 'La science de la morale,' which appeared in 1869. M. Darlu points out the close relationship of Renouvier to the ideas of the French Revolution —emphasis on liberty, individualism and personalism; a virtual *contract* which the *reasoning* mind makes in recognizing the equal rights of other persons and which gives the basis for justice; the right of combat because minds are not always reasonable, etc. He dwells at some length upon Renouvier's application of his principles to economics, where duty is

defined as an obligation to labor and a right is a credit upon the labor of others, and where Renouvier is kept from substituting the word labor everywhere for the word duty only, as he himself says, in order to remain in line 'with a respectable tradition which the Kantian ethics re-established in its purity.' Renouvier finds the remedy for injustice and for the state of war, not in reform laws, but in bringing every separate individual of the whole mass to a sense of justice.

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JOURNALS AND NEW BOOKS

MIND. January, 1904, N. S., No. 49. *The Definition of Will (III.) (pp. 1–37)*: F. H. BRADLEY. – In this article, the last of a series, the author desires to test his definition of will as 'the self-realization of a tendency with which the self is identified,' by considering those cases to which this definition might seem least applicable. To this end he discusses imperative, disjunctive and negative types of volition, and the relation of will to conation, desire, pleasure and pain. The so-called different types of volition are successively shown to differ in the ideas willed rather than in the acts of willing. Thus 'imperative volition' is the *indicative* willing of an imperative; 'disjunctive volition' the categorical willing of a disjunctive idea; 'negative volition' the affirmative willing of a negation (*i. e.*, a destruction or removal) of something. Will is wrongly supposed to depend in its essence upon conation, desire, pleasure and pain. For there are cases of will which involve none of these, and even if they have been necessary for the origin of will it does not follow that they enter into its nature. Moreover, they in no way explain the mechanism will, which is rather to be explained by the supposition of natural or acquired *dispositions,* which are started into activity by ideal suggestions. *The Relations of Metaphysics to Ethics (pp. 38–53)*: W. H. FAIRBROTHER. – "Are the ethical doctrines taught by the more important writers in this subject derived from, or traceable to, their respective metaphysical beliefs? or (2) *in abstracto,* is the subject matter of Moral Science of such a kind that it is necessarily affected by our belief as to the ultimate nature of man and the Universe?" The writer concerns himself mainly with the first question. He shows that Plato and Green explicitly, and Kant, Spencer, Stephen and Mill implicitly, base their theory of what ought to be on their theory of what is. On the other hand, the eighteenth-century moralists seem to confine their ethical inquiries to the nature and origin of the moral sentiments actually possessed. But their ethical theories are for that very reason regarded as unsatisfactory. The only legitimate basis for making ethics independent of metaphysics is that 'our knowledge of reality is not complete enough to enable us to deductively demonstrate the multifarious detail to which answers must be given and practically acted upon in daily life.' *Kant's Transcendental Idealism (II.) (pp. 54–71)*: C. M. WALSH. – "This paper does not advocate the adoption of the Transcend-

ental Realism rejected by Kant. It attempts merely to show that in rejecting this theory and in setting up his own Kant did not have clear and distinct ideas about the subjects of which he was treating. It attempts to show that Kant was confused in his theory of Empirical Realism or conception of an outside world, which his critics have generally been willing to accept, as much as in his conception of things in themselves, which his critics have generally repudiated. It attempts to show that Kant did not present to philosophy a new consistent metaphysical view of the world able to rank with those already founded; but that he brought forth only a muddled and ambiguous conglomeration, which when clarified resolves itself into one or another of the older views." *Professor Adamson's Philosophical Lectures (pp. 72–99):* G. DAWES HICKS. – This paper, called forth by the recently published volume of Professor Adamson's Lectures, edited by Professor Sorley, is devoted to a sympathetic discussion of Professor Adamson's philosophy, particularly to the difference between its earlier and later stages. "A two-fold development seems clearly traceable in his thinking. On the one hand, he appears to have advanced farther and farther from the view according to which psychology is to be regarded as a purely empirical or natural science, on the other hand, he appears to have been brought more and more to the belief that underlying philosophical empiricism or Naturalism was to be discerned a fundamental principle as to the nature of knowledge which seemed to him of the utmost significance and value." Critical Notices: – J. Dewey, *Studies in Logical Theory:* F. C. S. SCHILLER. R. Flint, *Agnosticism:* S. H. MELLONE. A. Riehl, *Zur Einführung in die Philosophie der Gegenwart:* H. W. BLUNT. F. H. Hayward, *The Reform of Moral and Biblical Education on the Lines of Herbartianism, Critical Thought, and the Ethical Needs of the Present Day:* FOSTER WATSON. A. Binet, '*L'Étude Experimentale de l'Intelligence:* J. L. MCINTYRE. New Books. Philosophical periodicals. Notes: – *Professor Bain:* W. L. DAVIDSON. Mind Association: Full List of Officers and Members. News and Correspondence.

THE JOURNAL OF COMPARATIVE NEUROLOGY AND PSYCHOLOGY. March, 1904, Vol. XIV., No. 1. *The Relation of the Motor Endings on the Muscle of the Frog to Neighboring Structures (pp. 1–16):* JOHN GORDON WILSON. – A histological study of the breaking up and disappearance in the muscle fibers of the terminal nerve fibrils, the variations in the arrangement of the nerve endings with their fibrils and their relationship to the sarcolemma. (2 Plates.) *Space Perception of Tortoises (pp. 17–26):* ROBERT M. YERKES. – A comparative experimental study of the reactions of tortoises to space (when placed on an elevated board) in relation to their habits. 'Hesitation in the presence of a void' increases as we pass from aquatic to terrestrial forms, and 'total inhibition' appears at a much lower elevation for land species. Blindfolded tortoises were tested to determine the 'spatial worth of sense data,' showing that visual impressions are a prime, though not an exclusive factor. *A Note on the Significance of the Form and Contents*

of the Nucleus in the Spinal Ganglion Cells of the Fœtal Rat (pp. 27–48): SHINKISHI HATAI. – In early embryonic life, Nissl granules 'are derived either by the diffusion of the nucleins from the necleus or by a migration of the accessory nuceoli into the cytoplasm'; the materials for the formation of the nuclein 'are collected from the periphery of the cell body to the center of the centrosome by means of the astral rays,' thence, through these rays, to nuclear pseudopodia, by which they are absorbed into the nucleus. In the adult condition the nucleins pass from nucleus to cytoplasm by diffusion, chiefly at the poles. (2 Plates.) *An Establishment of Association in Hermit Crabs, Eupagurus longicarpus (pp. 49 61):* E. G. SPAULDING. – Experiments show that the species studied "is capable of profiting by experience, in a rather short time, by associating the 'constructs' of two 'sense fields,' vision and taste," the association being effective in 'subsequently bringing about, with only one stimulus presented, the same reaction against a natural positive heliotropism,' an unfavorable case for acquisition from the start. The question of the representative character of the influence of the associated stimulus is raised. *Editorial, L'Envoi:* C. L. HERRICK, R. M. YERKES. *The Mid-winter Meetings. Literary Notices:* John B. Watson, Animal Education, ROBERT YERKES. A. Forel, papers on comparative psychology, H. HEATH BAWDEN. Edouard Claparède, *The Consciousness of Animals,* J. CARLETON BELL. E. L. Thorndike, *Educational Psychology,* H. HEATH BAWDEN. Reviews of Articles. Plates.

AMERICAN JOURNAL OF PSYCHOLOGY. Vol. XV., No. 1, January, 1904. *A Theory of Time Perception (pp. 1–14):* W. P. MONTAGUE. – The paper aims to define the specious or extended present of perceptional time so that it will be seen to be consistent with the unextended present of real time. The formula is based upon the fact that a ratio of infinitesimals can be itself finite. It is verified by application to the phenomena of duration and succession, rate of time-flow, rhythm, memory, familiarity, simultaneous origin of a time form and its contents. *Auditory Tests (pp. 15–56):* B. R. ANDREWS. – A discussion of the methods now in use for testing auditory acuity. The spoken word is preferred to the simple sound, tone or syllable because of its apperceptive value. After reviewing the factors necessary to make a good word test, he selects a number of numerals which are to be whispered at such a distance that they are just recognized by the observer. *Some New Apparatus (pp. 57–61):* E. B. TITCHENER. – Description and pictures of a new Whipple gasometer, a frame for adaptation and color images, a contrast frame, a six-fold color mixer, a wall campimeter, and a disk cutter. *Ebbinghaus's Explanation of Beats (pp. 62–71):* BENTLEY AND TITCHENER. – Beats are probably correlated with cochlear vibrations which repeat with more or less fidelity the resultant from two pendular vibration rates. *The Proof and Measurement of Association between Two Things (pp. 72–101):* C. SPEARMAN. – A valuable contribution to the methods of estimating correlation. A formula is derived for treating correlations of rank, and also for eliminating the errors due to constant over- or under-

estimations in assigning the rank of an individual. *Professor Cattell's Statistics of American Psychologists* (*pp. 102–103*). I. W. BENTLEY. Comments on Professor Cattell's method. *Nocturnal Emissions* (*pp. 104–107*). – A somewhat statistical study of the author's experience for several years.

ZEITSCHRIFT FÜR PSYCHOLOGIE, etc. January 5, 1904, Bd. XXXIII., Hft. 6. *Die Empfindlichkeit des Ohres* (*pp. 401–423*): H. ZWAARDEMAKER. – By the use of tuning-forks for the lower tones and Galton's whistle for the higher, the amount of energy required to produce a just perceptible tone was measured. Much less energy was required in the middle than towards the ends of the tonal scale. The absolute measures obtained were very much larger than those of Wien; sources of error in Wien's determinations. *Zur Psychophysiologie der Mundhohle, etc.* (*pp. 424–443*): F. KIESOW. – A defense, against Wundt, of the author's previous statement that the pain-free spots of the inner surface of the cheek are sensitive to pressure. The defense consists in the application to these spots of pressures, which, though so light that they could not spread to neighboring regions, yet were sensed. *Zur Frage nach der Fortpflanzungsgeschwindigkeit der Erregung im sensiblen Nerven des Menschen* (*pp. 444–452*): F. KIESOW. – A repetition, on a small scale, of the work of DOLLEY AND CATTELL (to whom, however, no reference is made), in determining the velocity of a sensory impulse. The result gave 30–32 meters per second in the one subject tested. *Ein Beitrag zur Frage nach den Reaktionszeiten der Geschmacksempfindungen* (*pp. 453–461*): F. KIESOW. – An area of the tongue-tip was stimulated by strong solutions. The reaction times were: to sodium chloride, 307σ; to cane sugar, 446σ; to hydrochloric acid, 536σ; to quinine sulphate, 1081σ. Criticism of the much shorter values obtained by von Vintschgau and Hönigschmied from some subjects. *Literature,* pp. 462–472.

ANNALEN DER NATURPHILOSOPHIE. November, 1903. III., 1. *Das Raumproblem* (*pp. 1–23*): F. HAUSDORFF. – The space of experience is essentially Euclidean; its axioms should receive criticism from deductive geometry, Euclidean or other. The latter requires certain empirical axioms, and rejects others; it is not subject to verification by intuition, which is an individual, psychological matter. A bibliography follows. *Uber Begriffsbildung und Werturteile in der Geschichte* (*pp. 24–70*): B. SCHMEIDLER. – Rickert rightly says that history is the arrangement of individuals in a continuous development, but errs in limiting historical material to what can be grouped under one system of evaluation. Such evaluation is a practical matter that does not concern the historian as such. All his facts, however, must be subsumed under a system of ultimate concepts to include all the permanent aspects of human nature. *Beiträge zur Selektionstheorie* (*pp. 71–95*): C. VON EHRENFELS. – The objections to Darwin's theory of the increase of useful variations through selection result from his failure to define 'useful.' He meant a variety that favorably influenced the capacity of the organism. Thus under-

stood, such increase is not only possible, but necessary. *Das Salto-mortale des Gedankens (pp. 96–110):* E. SOKAL. – The distinction between physical and psychical only has meaning in connection with the ultimate impossibility of perceiving the consciousness of another. The sun and a toothache are thus distinguished because in the case of the former, the 'mortal leap,' analogical interpretation of one mind by another, is more exactly determinable. *Über kausale und finale Erklärung (pp. 111–117):* WOLFGANG OSTWALD und W. BLOSSFELDT. – Causal explanation brings a particular event under a concept. Each science has a concept which may be described as its 'Endoberbegriff.' Through this the causal is referred to a final explanation. *Critical Notices,* by W. O. – *Gott. Religion:* A. ELEUTHEROPULOS. *Suggestion und Hypnotismus in der Völkerpsychologie:* O. STOLL. *Naturalism and Agnosticism: The Gifford Lectures delivered before the University of Aberdeen, 1896–8:* J. WARD. – *Nietzsches Lehre in ihren Grundbegriffen:* O. EWALD. – *Fechners Metaphysik:* R. LIEBE.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. January, 1904, Band X., Heft 2. *Weitere Beiträge zur Lebensgeschichte George Berkeleys (pp. 159–170):* T. LORENZ. – Three unaddressed letters, two of which the article reproduces, are identified as interesting replies from Berkeley to Jean Leclerc, relative to the latter's criticisms of 'The Principles of Human Knowledge,' and 'The Theory of Vision.' *Sur une prétendue faute de raisonnement que Descartes aurait commise (pp. 171–175):* J. CHAZOTTES. – The fault lies with the critic. Descartes' demonstration did, as he supposed, in fact anticipate Galileo's formulation of the law of falling bodies. *Locke, eine kritische Untersuchung der Ideen des Liberalismus und des Ursprungs nationalökonomischer Anschauungsformen (pp. 176–195):* G. JAEGER. – New light is thrown on the worth of these ideas when viewed as the offspring of Locke's scepticism and intellectualism. Locke is contrasted with Luther. *Entwicklung der arabischen und jüdischen Philosophie im Mittelalter (pp. 196–236):* J. POLLAK. – The analogy between the two movements is traced in some detail. Philosophy is not of native growth in either Judaism or Islam, but in neither is it mere imitation. *Die Lehre von der Bildung des Universums bei Descartes (pp. 237–271):* A. HOFFMAN. – The return of Renaissance thought to Lucretian atomism is exhibited, and the development of the rotation theory by Bruno and Keppler. Descartes developed the theory of the homogeneity of atoms on epistemological grounds, and substantiated it through his analytical geometry. His glimpse of the principle of the differential calculus suggested an interpretation of qualitative changes. *Jahresbericht über die deutsche Literatur zur nacharistotelischen Philosophie (pp. 275–287):* A. DYROFF. – Particular attention is given to the critic's own work, 'Die Ethik der Alten Stoa.' Latest issues in the domain of the history of philosophy.

VIERTELJAHRSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOCIOLOGIE. XXVII., 4. *Skizze der sozialökonomischen Geschichtsauffaussing (II., pp. 369–431):* FRANZ OPPEN-

HEIMER. – History is essentially social-economic, in that it really tells of nothing but the struggle for a standard of distribution of the economic medium, work. The principle of social movement is not self-interest, but movement to diminish social-economic pressure along the line of least resistance. *Über die zeitlichen Verhältnisse in der Sinneswahrnehmung (II., Schluss., pp. 415–428)*: R. MÜLLER. – Sensation is not in the subject, but is external. The unity of extended sensations is the outer world. The universality in knowledge is not to be attributed to God, or to things-in-themselves, or to the knowing subject; but to the ultimate fact of a compulsion (Zwang) in sensation and perception. Extension, both spatial and temporal, is the property of perception, not of sensation; time can adequately be reproduced in the idea. *Zu Herders 100. Todestage (pp. 429–451)*: P. BARTH. – Herder was a true though unsystematic psychologist, thereby freeing himself from the intellectualism of the 'Enlightenment.' Hence his rejection of Kant's critical epistemology. In the philosophy of esthetics, of language and of history his work was epoch-making. *Critical Notices:* Gennaro Mondaini, *La questione dei negri nella storia e nella società nord-americana con prefazione del Prof. Enrico Morselli Torino Fratelli Bocca:* P. BARTH. L. Favre, *L'organisation de la science:* GIESSLER. S. S. Laurie, *Metaphysica Nova et Vetusta:* GIESSLER. A. Meinong, *Über Annahmen:* P. LINKE. J. Royce, *The World and the Individual; Second Series:* H. SCHWARZ. B. Russel, *A Critical Exposition of the Philosophy of Leibniz:* H. SCHWARZ. Kant, *Gesammelte Schriften; herausgegeben von der Königlich preussischen Akademie der Wissenschaften:* R. RICHTER. W. Ostwald, *Vorlesungen über Naturphilosophie:* GIESSLER. *Erklärung (pp. 478–480)*: P. BARTH. Philosophische Zeitschriften. Bibliographie.

REVUE DE PHILOSOPHIE. January, 1904. 4e. Année, No. 1. *(pp. 1–136). La Science et l'Esprit scientifique (pp. 1–22)*: G. MICHELET. – The new positivism or philosophy of action, due to Poincaré, Duhem, Milhaud, Tannery, Boutroux and Bergson is one-sided and quite as metaphysical as any other doctrine. The source of truth lies not in our construction but in intuition which is of an objectively real. *Fénelon Metaphysicien (Oeuvres inédites) (pp. 23–50)*: E. GRISELLE. – This gives the test of Fénelon's third letter on divers subjects of metaphysics and religion *(a suivre)*. *L'Institution internationale de Sociologie et Congrès de 1903 (pp. 51–52)*. Discussion of the relations of sociology and psychology: titles of papers. *Analyses et Comptes Rendues (pp. 53–80)*. I. *History of Philosophy:* P. Lemaire, *Le Cartésianisme chez les Bénédictins: Dom Robert Desgabets* (Paris, 1903): A. Humbert. R. Allier, *La Philosophie d'Ernest Renan* (Paris, 1903): V. Biétrix. II. Psychology: Vaschide et Vurpas, *Essai sur la Psycho-physiology des monstres humains* (Paris, 1903): E. D. Dr. Surbled, *La Vie de Jeune Homme* (Paris, 1903): J. D'Estienne. Dr. Surbled, *La Vie de Jeune Fille* (Paris, 1903): J. D'Estienne. E. Cuyer, *La Mimique* (Paris, 1903): E. A. de Gourmont, *Physique de l'Amours* (Paris, 1903): T. de Visan. E. Tardieu, *L'Ennui* (Paris, 1903): E. A. H. Temmermann, *Notions de Psychologie appliquée*

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NOTES AND NEWS

THE first of the Jowett Lectures for 1904 was delivered by Dr. J. Ellis McTaggart, at the Passmore Edwards Settlement, London. We reprint the following account from the London *Times:* "There was a large at-

tendance, among those present being Mrs. Humphry Ward. Taking as the subject of his opening discourse 'An introduction to the study of philosophy,' the lecturer pointed out that there was no agreement about the conclusions of metaphysics, as the most eminent experts differ completely. The consequence of this was that no one had the right to accept any conclusion of metaphysics which he had not arrived at himelf. The object of his lectures was to induce people to think for themselves on the subject of metaphysics. He did not wish to recommend his own views for acceptance, but to place before his audience the various conflicting views now entertained. He might define metaphysics as the systematic study of the ultimate nature of reality. Metaphysics and philosophy meant very much the same thing, except that philosophy also included ethics, which he might define as the systematic study of the ultimately desirable. Dealing with the difference between metaphysics and religion, he said that religion was not as metaphysics was, simply a system of knowledge. Religion was a form of, or at any rate included, emotion, and rested on a system of propositions which was usually called theology. But all propositions of theology dealt with metaphysical subjects; the whole field of theology was, in fact, nothing but the field of metaphysics. Speaking of the relation of metaphysics to science, he pointed out that science was the systematic study of the nature of reality, whereas metaphysics was the systematic study of the ultimate nature of reality. Metaphysics dealt with the general principles which were common to all sciences, but there were subjects dealt with in metaphysics which were not dealt with in science at all. As to the utility of the study of metaphysics, he pointed out that its utility was usually justified on the ground that it was helpful in a person's actions. He, however, did not think it gave much guidance in action in any direction, if at all. The practical utility of metaphysics rested not in its giving any guidance in action, but in the comfort it afforded in helping to give pleasure and avoid pain. As education advanced, so interest in the deeper and wider problems of the universe increased, and the desire to reflect became more widespread. At the conclusion of the lecture, on the motion of Mrs. Humphry Ward, a vote of thanks was passed to Professor Butcher for presiding."

WITH the present volume, *The Journal of Comparative Neurology* appears under the changed title of *The Journal of Comparative Neurology and Psychology,* with a corresponding enlargement of its scope, to include the publication of articles on the comparative physiology of the nervous system and on animal behavior, as well as purely morphological articles, whereby it is hoped to emphasize the intimate relation between the study of structure and the study of function, and to secure more cooperation among workers in these cognate fields than has obtained hitherto. The editorial board, as reorganized, consists of Dr. C. L. Herrick, Professor C. Judson Herrick, of Denison University, *Manager,* and Dr. Robert M. Yerkes, of Harvard University, associated with Dr. Oliver S. Strong, of Columbia University, and Professor Herbert S. Jennings, of the University of Pennsylvania, and assisted by a representative staff

of collaborators, including students of comparative and genetic psychology. The journal is to be issued bimonthly from Denison University, Granville, Ohio. We print an abstract of the March number on page 189.

THE editor of the *Königsberger Hartungsche Zeitung* has received from Mr. A. J. Balfour the following contribution to the jubilee number of that journal, issued in connection with the one-hundredth anniversary of the death of Kant: "Königsberg does well to keep alive every memory connected with the great man whose writings opened a new epoch in the development of philosophy. I am proud to think that, though Kant was a 'German of the Germans,' his ancestors were countrymen of my own, so that Scotland may have something more than a strictly philosophic interest in the perpetuation of his memory."

THE SOCIETY FOR PHILOSOPHICAL INQUIRY (Washington, D. C.) devoted its meeting of February 16 to the Kant Centennial. Papers were read by the President of the society, Professor J. Macbride Sterrett, on Neo-Kantianism; by Mr. Wm. M. Coleman on Kant's Political Doctrines; by Professor Edw. S. Steele on Kant's Logic, and by Rev. Dr. Frank Sewall on Kant's Transcendental Idealism.

THE Appunn wire forks, for the determination of the lower limit of audition, may now be obtained from E. Zimmermann, of Leipzig. A set of five forks (8, 20, 30, 40, 56 vs.) may be procured for Mk. 37.50; the separate forks for Mk. 7.50 each. Forks of any required number of vibrations can be furnished to order.

DOCTOR GEORGE R. MONTGOMERY, Lecturer in Philosophy in Yale, author of 'The Place of Values' (1903), translator of Leibniz's 'Metaphysics' (2d Ed., 1903), has accepted a call to the Professorship in Philosophy in Carleton College, Northfield, Minn. He will enter upon his duties in September.

DR. SHEPHERD IVORY FRANZ, of Dartmouth College, has accepted a research position as physiologist at the McLean Hospital for the Insane, at Waverly, Mass. He expects to continue his researches on the physiology of the brain, and to start work on the physiological conditions of insanity.

PROFESSOR KUNO FISCHER, of Heidelberg, will not retire, as has been announced, but offers this summer four lectures a week on 'The History of Modern Philosophy.'

PROFESSOR EUGENE W. LYMAN, of Carleton College, Northfield, Minn., has accepted a call to the chair of apologetics in a denominational college in Montreal.

DR. TH. ZIEHEN, of Halle, has been called to the chair of psychiatry at Berlin vacated by the death of Dr. F. Jolly.

DR. AUGUST DÖRING, titular professor of philosophy at Berlin, has celebrated his seventieth birthday.